UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 1 2007

OFFICE OF WATER

MEMORANDUM

SUBJ: Climate Change and the National Water Program

FROM: Benjamin H. Grumbles
Assistant Administrator for Water

TO: Office Directors: Office of Water
Water Division Directors: Regions 1 – 10
Great Waterbody Program Office Directors

EPA and its partners, locally and globally, are learning more and doing more to confront the serious challenge of climate change. Increasingly, we understand climate change may have impacts on water resources and watersheds and affect our efforts to ensure progress under the Clean Water Act, Safe Drinking Water Act, and various ocean and coastal laws. While there remains some uncertainty on the scope and timing of climate change related effects, the National Water Program and its partners should take prudent steps now to assess emerging information, evaluate potential impacts of climate change on water programs, and identify appropriate response actions.

This memorandum describes general principles to guide the National Water Program in responding to climate change, outlines an organizational approach to addressing climate change within the National Water Program and proposes developing a National Water Program strategy on climate change. Your comments would be helpful on both the general topic of climate change impacts on water resources and on the principles, organization, and approach described in this memorandum. In addition, I ask that you consider naming a senior manager from your organization to serve on a new National Water Program Climate Change Workgroup.

I) Principles

The following general principles will help to guide the efforts of the National Water Program as we coordinate to evaluate potential impacts from climate change.

- **Common Strategy Framework:** The National Water Program will organize its work related to climate change around the existing Agency framework focusing on the three key topics of mitigation, adaptation, and research.

- **Cooperation with Other EPA Offices:** The National Water Program will draw on the knowledge of other EPA offices, including the Office of Research and Development and the Office of Air and Radiation, in addressing climate change issues and will leverage the work of these offices wherever possible. The National Water Program will also identify opportunities to support ongoing Administration initiatives on climate change science, impacts, and adaptation.

- **Implement Response Actions:** A key purpose of our work on climate change is to create the capacity within the National Water Program to develop and implement specific response actions in coordination with Federal, State, and other partners.

- **Open Communications:** The National Water Program intends to open a dialogue on the impacts of climate change on water programs and the capacity to identify and adopt emerging best practices.

- **Iterative Process:** The National Water Program will monitor implementation of response actions and review and revise the strategies as needed.

II) National Water Program Climate Change Workgroup

The National Water Program will establish a new Climate Change Workgroup made up of managers from each HQ water program office and several Regional water offices. I have asked Deputy Assistant Administrator for Water Michael Shapiro to chair the Workgroup, which will also include a senior manager from the Office of Research and Development and the Office of Air and Radiation.

In addition to overseeing water program work related to climate change, the Water Program Climate Change Workgroup will provide background information and educational materials to EPA water program managers with the goal of increasing understanding of potential climate change impacts on water resources among a wide range of water program managers. Based on this work, the Workgroup will develop a National Water Program Strategy on Climate Change (see below). The Workgroup will also, in consultation with the Office of Research and Development and the Office of Air and Radiation, work to increase communications concerning information and actions related to climate change impacts on water, including describing EPA actions to key stakeholders, such as State and Tribal water program managers, and gathering information from outside parties.

Office Directors in the Office of Water should provide the name of a senior manager from their Office to serve on the Workgroup to Michael Shapiro by March 9th. I have also asked Jim Giattina, Water Division Director for the EPA Lead Region for Water (Region 4), to consult with Regional Water Division Directors and Great Waterbody Program Offices Directors and provide to Michael Shapiro by March 9th the

names of senior managers to represent Regional Offices and Great Waterbody Program Offices on the Workgroup.

III) National Water Program Climate Change Strategy

Climate change has the potential to affect water resources in five areas:

- atmospheric temperature;
- rainfall/snowfall levels/distribution;
- storm intensity;
- coastal/ocean characteristics (temperature/chemistry); and
- sea level rise.

For example, sea level rise can result in wetlands loss, shoreline erosion, and saltwater intrusion on sources of drinking water. In addition, changes in ocean chemistry will affect coral reef biology. An important task is to fully define the range of impacts on water resources associated with the consequences of climate change. A draft chart describing the potential water resources related effects associated with climate change is attached.

More information about each of these subject areas is available at the new EPA website on Climate Change: http://www.epa.gov/climatechange/. The Office of Water may develop additional materials addressing impacts on water programs operations in more detail and will work in consultation with the Office of Research and Development and the Office of Air and Radiation. New information concerning climate change impacts developed as part of ongoing climate change assessments will be factored into this work as it becomes available.

A key purpose of this effort is to define specific actions the National Water Program can take over the next several years to tailor the implementation of the National Water Program to better address the potential challenges posed by climate change. In other work on climate change, EPA has organized response actions into three categories:

- mitigation;
- adaptation; and
- research.

These three themes provide a framework that the Water Program Climate Change Workgroup can use to identify and develop specific program response actions. I anticipate that our focus will be primarily on adaptation (i.e. the impact of climate change on water resources and on the capacity to meet the requirements of the Clean Water Act in a changing environment). However, there are areas where the Office of Water has begun to work with other offices in mitigation, for example in geosequestration of carbon dioxide and energy efficiency. In addition, I anticipate that we will also identify areas for further research. Collectively, these actions will form the substantive core of the water

program climate change strategy. The Workgroup will focus on appropriate, effective, and feasible response actions to the effects of climate change on national water resources.

The schedule for National Water Program work related to climate change includes the following key milestones:

- initial Workgroup meeting: March 2007
- Workgroup work sessions on climate change impacts organized around the five key impact areas: March
- Workgroup work sessions to identify response actions organized around response action framework: March/April
- national "fly-in or teleconference" of EPA HQ/Regional managers: May
- first draft of water climate change strategy for internal comment: May
- stakeholder comments on draft water climate change strategy due to OW: June
- stakeholder comment period on draft water climate change strategy: July/August
- revise draft strategy based on comments: timing subject to development of supporting information and other factors.

Although the water climate change strategy will not become final until late in 2007, the National Water Program will prepare for prompt implementation of response actions on final publication of a strategy and will begin implementation at an earlier date when that is appropriate.

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I would be happy to hear your thoughts and suggestions on the general subject of how the National Water Program can best respond to emerging information concerning climate change. Please provide any comments that you have on the approaches outlined in this memorandum to Jeff Peterson in the Office of Water (202-564-5771).

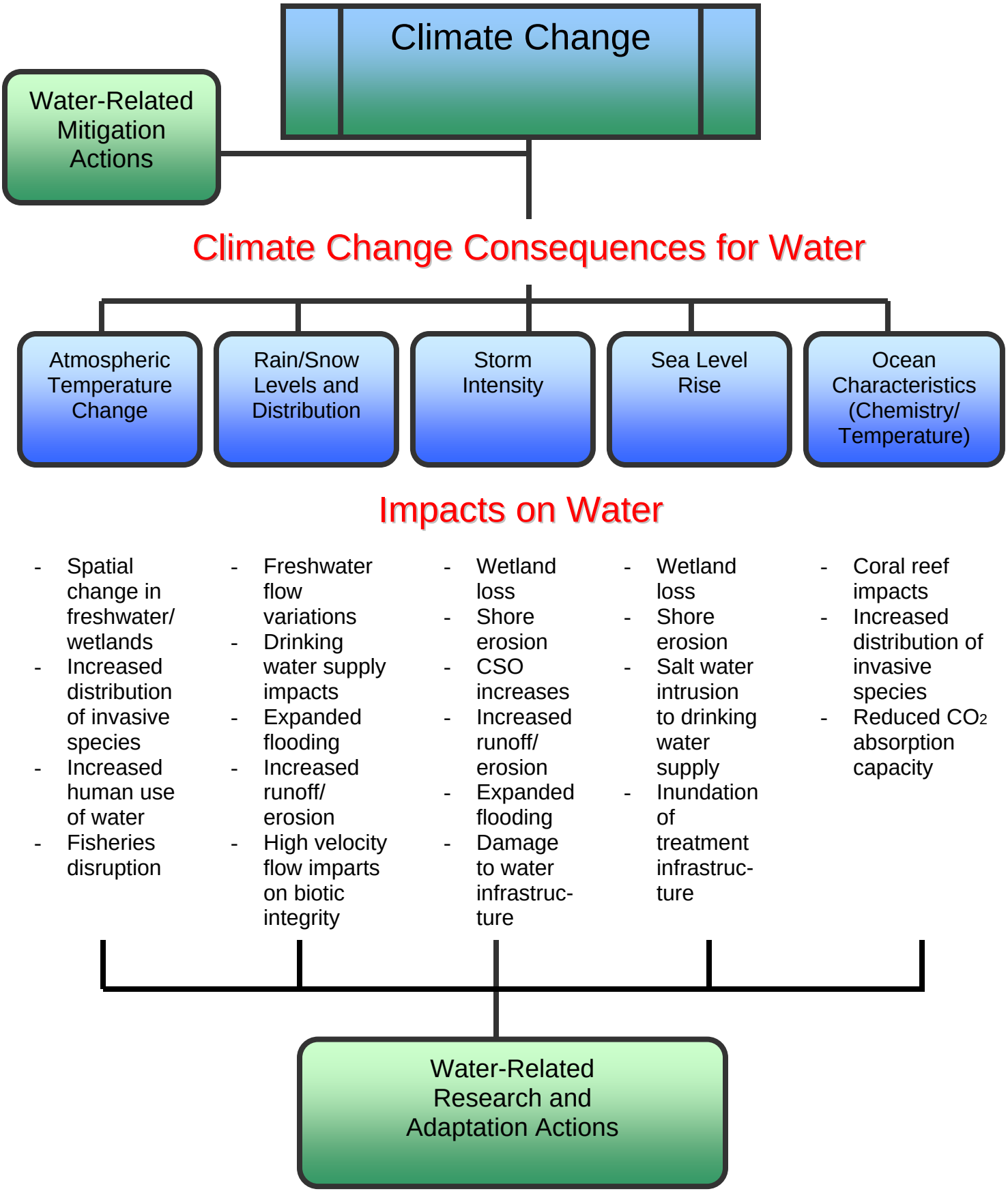
I look forward to working with you on this important effort.

cc: Michael Shapiro
Brent Fewell
Regional Administrators: Regions 1-10

ATTACHMENT

-- DRAFT Chart: Consequences of Climate Change for Water

Draft


Climate Change
Water-Related Mitigation Actions
Climate Change Consequences for Water
Atmospheric Temperature Change
Rain/Snow Levels and Distribution
Storm Intensity
Sea Level Rise
Ocean Characteristics (Chemistry/ Temperature)
Impacts on Water
- Spatial change in freshwater/ wetlands
- Increased distribution of invasive species
- Increased human use of water
- Fisheries disruption
- Freshwater flow variations
- Drinking water supply impacts
- Expanded flooding
- Increased runoff/ erosion
- High velocity flow imparts on biotic integrity
- Wetland loss
- Shore erosion
- CSO increases
- Increased runoff/ erosion
- Expanded flooding
- Damage to water infrastruc-ture
- Wetland loss
- Shore erosion
- Salt water intrusion to drinking water supply
- Inundation of treatment infrastruc-ture
- Coral reef impacts
- Increased distribution of invasive species
- Reduced CO_2 absorption capacity
Water-Related Research and Adaptation Actions